

CLAIMS

What Is Claimed Is:

1. A process for the manufacture of a dental material comprising:
5 applying one or more strips of ceramic material in its green state on a mold to form to the shape of the mold; and
 sintering the formed material for a time of less than about three hours to provide the dental material.
- 10 2. The process of claim 1 further comprising applying pressure on the ceramic material to conform the material to the shape of the mold prior to sintering.
3. The process of claim 1 wherein the pressure is applied by hand or by machine.
- 15 4. The process of claim 1 further comprising applying one or more coatings of a material to the sintered dental material.
5. The process of claim 1 wherein the dental material is an orthodontic appliance, bridge, space maintainer, tooth replacement appliance, splint, crown, partial crown, denture,
20 post, tooth, jacket, inlay, onlay, facing, veneer, facet, implant, abutment, cylinder, or connector.
6. The process of claim 1 wherein the strips of ceramic material comprise a material selected from alumina, zirconia, mullite, spinel, glass-ceramic, porcelain, titania, lithium
25 disilicate, leucite, amorphous glass, lithium phosphate, and mixtures thereof.
7. The process of claim 1 wherein the ceramic strips comprise at least one medium.

8. The process of claim 4 wherein the one or more coatings is a porcelain material.
9. The process of claim 4 wherein the one or more coatings is a composite resin material.
- 5 10. The process of claim 4 wherein the one or more coatings is a ceramic material.
11. The process of claim 4 wherein the one or more coatings is a glass material.
- 10 12. A dental restoration made from the process of claim 1.
13. A dental restoration comprising:
a support structure fabricated of ceramic tape;
whereby the support structure is sintered for a time of less than about three hours; and
15 one or more layers of a coating material disposed on the support structure.
14. The dental restoration of claim 13 wherein the ceramic tape comprises a ceramic material selected from the group consisting of alumina, zirconia, mullite, spinel, glass-ceramic, porcelain, titania, lithium disilicate, leucite, amorphous glass, lithium phosphate,
20 and mixtures thereof.
15. The dental restoration of claim 14 wherein the ceramic tape further comprises at least one medium.
- 25 16. The dental restoration of claim 15 wherein the medium comprises a silicone polymer.
17. The dental restoration of claim 16 wherein the silicone polymer comprises fifty

percent or more SiO.

18. A process for fabricating a dental material comprising:
mixing ceramic powder and one or more media together to achieve homogeneity
5 throughout the mixture and to form a putty;
applying the putty to a model to conform to the shape of the model; and
sintering the model with the putty thereon for a time of less than about three hours to
provide a dental material.

10 19. The process of claim 18 wherein the dental material is highly dense.

20. The process of claim 18 wherein the dental material comprises mechanical
properties having a low standard deviation.

15 21. The process of claim 18 wherein the ceramic powder comprises a glass-ceramic,
a glass powder, a ceramic powder or mixtures thereof.

22. The process of claim 18 wherein the ceramic powder comprises a material
selected from alumina, zirconia, mullite, spinel, porcelain, titania, lithium disilicate, leucite,
20 amorphous glass, lithium phosphate, and mixtures thereof.

23. The process of claim 18 wherein the dental material is an orthodontic appliance,
bridge, space maintainer, tooth replacement appliance, splint, crown, partial crown, denture,
post, tooth, jacket, inlay, onlay, facing, veneer, facet, implant, abutment, cylinder, or
25 connector.

24. A process for fabricating a dental material comprising:
mixing ceramic powder and one or more media together to achieve homogeneity

throughout the mixture;

feeding the mixture to a dispensing apparatus; and

dispensing the mixture from a dispensing apparatus onto a build platform to form a dental material.

5

25. The process of claim 24 wherein the ceramic powder and one or more media mixture is formed into a feed stock material prior to feeding to the dispensing apparatus.

10 26. The process of claim 24 wherein the ceramic powder comprises a material selected from alumina, zirconia, mullite, spinel, glass-ceramic, porcelain, titania, lithium disilicate, leucite, amorphous glass, lithium phosphate, and mixtures thereof.

27. The process of claim 24 wherein the one or more media comprises a silicone polymer.

15

28. A dental restoration formed by the method of claim 24.

29. A process for fabricating a dental material comprising:

20 applying a putty to a model to conform to the shape of the model, whereby the putty comprises ceramic powder and one or more media having homogeneity throughout the putty; and

sintering the model with the putty thereon for a time of less than about three hours to provide a dental material.

25

30. The process of claim 29 further comprising applying a layer of material selected from the group consisting of glass, ceramic, and glass-ceramic on the sintered dental material and sintering the layer of material to the dental material.

31. The process of claim 29 further comprising applying a layer of composite resin material on the sintered dental material and curing the layer of composite resin material to the dental material.

5 32. The process of claim 1 further comprising applying additional one or more strips of a ceramic material in its green state on the dental material and sintering the additional one or more strips on the dental material.

 33. A process for the manufacture of a dental material comprising:
10 applying one or more strips of ceramic material in its green state on a mold to form to the shape of the mold; and
 sintering the formed material for a time in the range of about one minute to about five hours to provide the dental material.

15 34. The process of claim 1 wherein the sintering time is in the range of ten minutes to one hour.

 35. A process for fabricating a dental material comprising:
 mixing ceramic powder and one or more media together to achieve homogeneity
20 throughout the mixture and to form a putty;
 applying the putty to a model to conform to the shape of the model; and
 sintering the model with the putty thereon for a time in the range of about one minute to about five hours to provide a dental material.

25 36. The process of claim 18 wherein the sintering time is in the range of ten minutes to one hour.